

9/17/13

Goal: Target D - Solve algebraic and arithmetic problems involving angles using '*part + part = whole*' and bisectors.

Agenda

- Review homework
Worksheet 1 - Classifying & Naming Angles
- Section 1.4 day 2 - Angle Addition Postulate
- Start homework
Worksheet 2 - Angle addition
- Mini Quiz on Thursday

Section 1.4 day 2 - Angle Addition Postulate Target D

Review:

Angles: Right

90°

Straight

180°

Acute

$0^\circ < m < 90^\circ$

Obtuse

$90^\circ < m < 180^\circ$

Name angles either by VERTEX or 3 letters.

New Material:

Angle Addition Postulate:

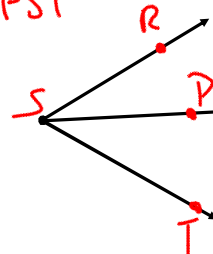


If P is in the interior of $\angle RST$, then the measure of $\angle RST$ is equal to the sum of the measures of $\angle RSP$ and $\angle PST$.

Algebraically

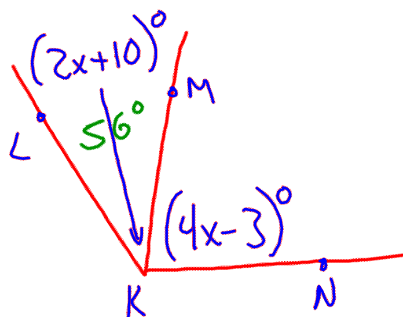
$$m\angle RST = m\angle RSP + m\angle PST$$

Visually



PART + PART = WHOLE

Examples:



GIVEN:
 $m\angle LKN = 145^\circ$

$$m\angle LKM + m\angle MKN = m\angle LKN$$

$$(2x+10) + (4x-3) = 145$$

FIND:

$$x = 23$$

$$m\angle LKM = 56^\circ$$

$$m\angle MKN = 89^\circ$$

$$\begin{array}{r} 6x + 7 = 145 \\ -7 \quad -7 \\ \hline \end{array}$$

$$\begin{array}{r} 6x = 138 \\ \hline 6 \quad 6 \end{array}$$

$$x = 23$$

$$m\angle LKM = 2(23) + 10$$

$$= 46 + 10$$

$$= 56^\circ$$

$$m\angle MKN = 4(23) - 3$$

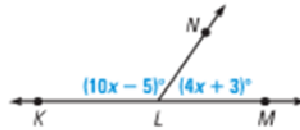
$$= 92 - 3$$

$$= 89^\circ$$

Section 1.4 day 2 - Angle Addition Postulate Target D

Examples:

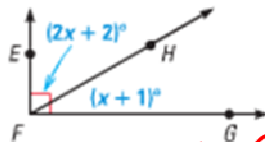
3. Given that $\angle KLM$ is a straight angle, 180°
find $m\angle KLN$ and $m\angle NLM$.



$$\begin{aligned} 10x - 5 + 4x + 3 &= 180 \\ 14x - 2 &= 180 \\ 14x &= 182 \\ x &= 13 \end{aligned}$$

$$\begin{aligned} x &= 13 \\ m\angle KLN &= 125^\circ \\ m\angle NLM &= 55^\circ \\ m\angle KLN &= 10(13) - 5 \\ &= 130 - 5 \\ &= 125 \\ m\angle NLM &= 4(13) + 3 \\ &= 52 + 3 \\ &= 55^\circ \end{aligned}$$

4. Given that $\angle EFG$ is a right angle, 90°
find $m\angle EFH$ and $m\angle HFG$.

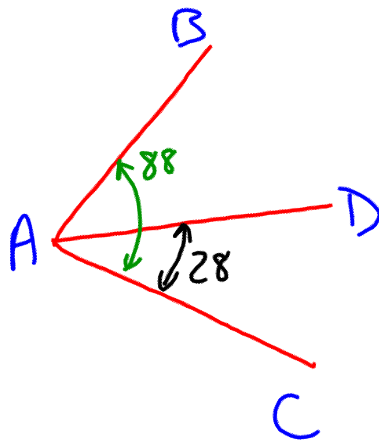


$$\begin{aligned} 2x + 2 + x + 1 &= 90 \\ 3x + 3 &= 90 \\ 3x &= 87 \\ x &= 29 \end{aligned}$$

$$\begin{aligned} x &= 29 \\ m\angle EFH &= 60^\circ \\ m\angle HFG &= 30^\circ \\ m\angle HFG &= (29) + 1 \\ m\angle EFH &= 2(29) + 2 \\ &= 58 + 2 \\ &= 60^\circ \end{aligned}$$

Summary-

Just like with segment addition, we can find parts of bigger angles by knowing the parts of the angles that make up the bigger angle. This works with subtraction too!



$$\begin{aligned} m\angle BAC &= 88^\circ \\ m\angle DAC &= 28^\circ \\ m\angle BAD &= 88^\circ - 28^\circ \\ &= 60^\circ \end{aligned}$$